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INTRAPRENEURIAL ACTIVITIES:
A CROSS-COUNTRY STUDY.**

Andreu Turró, David Urbano

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ORGANIZATIONAL RESOURCES AND INTRAPRENEURIAL ACTIVITIES: A CROSS-COUNTRY STUDY

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ABSTRACT

The importance of entrepreneurship for social and economic growth is generally accepted. In addition, intrapreneurship or corporate entrepreneurship is recognized as one of the key elements for organizational development. In this context, corporate culture and, specifically, entrepreneurial competences are considered to be catalysts for intrapreneurship. The main purpose of this paper is to analyse the influence of resources and capabilities on the probability of becoming an intrapreneur. Using data obtained from the Global Entrepreneurship Monitor (GEM) for 39 countries, and a logistic model, the study shows that entrepreneurial resources and capabilities, such as previous entrepreneurial experience, entrepreneurial competences and the ability to detect business opportunities, influence intrapreneurial behaviour. The contributions of this research are both conceptual (advancing corporate entrepreneurship theory) and practical (relating to the design of policies to foster intrapreneurial activities).

Keywords:

intrapreneurship, corporate entrepreneurship, innovation, resource-based theory, GEM.

1. INTRODUCTION

Intrapreneurship² is an important element in organizational and economic development (Pearce & Robbins, 1994; Antoncic & Hisrich, 2001), as it provides a potential means for revitalizing established companies (Pinchot, 1985; Guth & Ginsberg, 1990; Zahra, 1995; Zahra & Covin, 1995). Nowadays, companies need to innovate constantly if they want to succeed (Huse et al., 2005; Antoncic, 2007); they need to improve their flexibility, competitiveness, and reactivity (Littunen & Virtanen, 2006). There is a growing consensus that established companies need to nurture

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² Entrepreneurship that occurs within organizations has been described in various terms. In this research we use interchangeably intrapreneurship, corporate entrepreneurship, corporate venturing, or internal entrepreneurship.

entrepreneurship throughout their operations in order to compete successfully in changing environments (Sathe, 2003). Many authors have considered internal entrepreneurship as a method to offer an organization a strategic option to refine its business concept, to meet changing customer needs and expectations, and to enhance its competitive position (Pinchot, 1985; Guth & Ginsberg, 1990; Carrier, 1994; Zahra, 1996; Zahra & Garvis, 2000).

The concept of intrapreneurship has been evolving over the last 25 years (Peterson & Berger, 1972). Terms such as intrapreneuring (Pinchot, 1985), corporate entrepreneurship (Guth & Ginsberg, 1990), corporate venturing (Vesper, 1990), and internal corporate entrepreneurship (Schollhammer, 1982) have been used to describe the phenomenon of intrapreneurship. Perhaps one of the broadest and most widely accepted definitions of intrapreneurship is “entrepreneurship within an existing organization” (Antoncic & Hisrich, 2001). Some researchers have used narrower definitions, excluding smaller organizations and focusing on corporations (Pinchot, 1985), while others limit the term to the formation of new ventures (Badguerahanian & Abetti, 1995). Overall, several authors have concluded that this concept may take several forms (Sharma & Chrisman, 1999), as the studies of intrapreneurship are multidisciplinary and use several sources, which are often located within the works of entrepreneurship (Cunningham & Lischeron, 1991). Most empirical studies show a positive relationship between intrapreneurship and organizational performance (Zahra, 1991). Therefore, some scholars have focused on identifying the factors that contribute to or enhance intrapreneurship (Castrogiovanni et al., 2011). Their discussions have emphasized the importance of a variety of sources, such as the firm’s external environment (Covin & Slevin, 1989), organizational culture (Zahra, 1991), and structure (Miller, 1983).

Today, however, there are still many areas where further work is needed. In this regard, it is noteworthy that not many articles use empirical data to analyse ventures’ corporate business. The main purpose of this master thesis is to analyse the influence of resources and capabilities on the probability of becoming an intrapreneur. The research uses resource-based theory (RBT) as a conceptual framework. RBT has been increasingly used in multiple empirical papers that study entrepreneurial factors (Eisenhardt & Schoonhoven, 1996; Rothaermel et al., 2007, among others). However, very few papers in the intrapreneurship field are grounded in this theory (Yiu & Lau, 2008;

Castrogiovanni et al., 2011). In addition, a logistic regression analysis, and data from the Global Entrepreneurship Monitor (GEM) for 39 countries is used. The study demonstrates the importance of resources and capabilities for the development of intrapreneurial activities.

The implications of this research are both conceptual and practical. On the one hand, the study advances the theory of corporate entrepreneurship and contributes to an improvement in the measurement of the resources and capabilities variables. On the other hand, this paper provides valuable insights for the design of policies to foster intrapreneurial activities.

The paper is structured as follows. After this brief introduction, in the second section we review the literature on RBT and intrapreneurship. After that we present the model and hypotheses of the research. The fourth section presents the detail of the research methodology. The fifth section discusses the empirical results of the study. Finally, the paper points out the most relevant conclusions and suggests some future lines of research.

2. CONCEPTUAL FRAMEWORK

2.1. Intrapreneurship dimensions

Organizational performance, growth and development may depend considerably on intrapreneurship, as intrapreneurship helps managers to renew and revitalize their businesses and to innovate (Antoncic & Hisrich, 2001; Phan et al., 2009; Benitez-Amado et al., 2010). Authors see intrapreneurship as doing new things and departing from customary methods in order to pursue opportunities (Vesper, 1990); or as a process by which individuals inside organizations pursue opportunities without regard to the resources they currently control (Stevenson & Jarillo, 1990); or as a spirit of entrepreneurship within the existing organization (Hisrich & Peters, 1995); or as emergent behavioural intentions or behaviours deviating from the customary way of doing business (Antoncic & Hisrich, 2003; Antoncic & Antoncic, 2011).

Despite the fact that there are several types and labels for the intrapreneurship concept, the majority of researchers have recognized that corporate entrepreneurship is

fundamentally represented in three entrepreneurial acts: innovation, venturing, and renewal (Guth & Ginsberg, 1990). The innovative dimension refers to product and service innovation with emphasis on development and innovation in technology (Antoncic & Hisrich, 2001). Intrapreneurship includes new product development, product improvements and new production methods and procedures (Schollhammer, 1982). New business venturing is the most salient characteristic of intrapreneurship because it can result in a new business creation within an existing organization (Stopford & Baden-Fuller, 1994) by redefining the company's products (or services) and/or by developing new markets (Zahra, 1991). And finally, strategic renewal involves activities aimed at redefining the firm's relationship with its markets or competitors by fundamentally altering how it competes (Covin & Miles, 1999). In contrast to related notions of restructuring and rejuvenation that capture discrete initiatives, strategic renewal involves fundamental repositioning efforts by the firm within its competitive space.

Some authors like Antoncic & Hisrich (2001) take into account more than these 3 dimensions. They include a fourth dimension, the proactiveness which is related to aggressive posturing relative to competitors (Knight, 1997). A proactive firm is inclined to take risks by conducting experiments (Stopford & Baden-Fuller, 1994). It takes initiative (Lumpkin & Dess, 1996) and is bold and aggressive in pursuing opportunities (Covin & Slevin, 1991). Later Antoncic & Hisrich (2003) developed the eight-dimensional intrapreneurship concept which includes: new ventures, new business, product/service innovativeness, process innovativeness, self-renewal, risk taking, proactiveness and competitive aggressiveness. Besides, it is considered that it is feasible that different types of these corporate entrepreneurship dimensions can exist in the same firm (Stopford & Baden-Fuller, 1994).

Environment, individual, organization

Intrapreneurship research has identified three different sets of antecedents: The environment, the individual level, and the organization. The environment has historically been viewed as a determinant of entrepreneurial activity at both the individual as well as organizational level (Covin & Slevin, 1991). Researchers building

contingency models to explain and predict intrapreneurship and its outcomes tend to incorporate, in addition to internal variables, a set of external environmental variables (Zahra, 1991, 1993; Antoncic & Hisrich, 2001; Burgers et al., 2009). In occasions, environment has been analysed from an institutional perspective (North 1990, 2005). The institutional approach stresses the function carried out by institutions in economic development and has turned out to be one of the most suitable frameworks for the analysis of institutional factors that influence the development of entrepreneurial actions (Toledano et al., 2010). The list of environmental conditions that can trigger entrepreneurial activity in established firms is quite extensive (Sathe, 2003). Actually, Schindehutte, et al. (2000) use a review of literature in the areas of corporate entrepreneurship and organizational innovation to identify no less than 40 “key triggers” of corporate entrepreneurship activity, roughly half of which would be considered “environmental” in nature (Ireland et al., 2009). Thus, in terms of influencing intrapreneurship, the external environment appears as an important determinant (Covin & Slevin, 1991).

We find a second level of analysis on the individual intrapreneur (Pearce et al., 1997; Brundin et al., 2008; Akehurst et al., 2009; Hornsby et al., 2009; Ireland et al., 2009) which puts emphasis on the intrapreneur’s individual characteristics. Recognition and support of entrepreneurs in organizations is also a part of this focal area. According to this view corporate entrepreneurs are the individuals who take hands-on responsibility for innovating within an organization (Pinchot, 1985). Some of the research in this area emphasizes the vital role of middle managers in creating an environment that encourages innovation and entrepreneurship (Hornsby et al., 2002; Kuratko et al., 2009) and few puts emphasis on intrapreneurial activities carried on by top managers (Srivastava and Lee, 2005).

At an organizational level there is a focus on the formation of new corporate ventures (Carrier, 1994; Kellermanns & Eddleston, 2006; Renko et al., 2009; Lin, 2011) with a primary emphasis on the differentiation of types of new ventures, their fit with the corporation and their enabling corporate internal environment. Attention has been paid as well to the entrepreneurial organization (Burgelman, 1983; Pinchot, 1985; Kuratko et al., 1993; Stopford & Baden-Fuller, 1994; Shepherd et al., 2009; Zahra et al., 2009) which mainly emphasizes characteristics of such organizations. Previous research has focused on the type of intra-organizational environment impediments as well as the

benefits of developing entrepreneurship in corporations (Pinchot, 1985; Hornsby et al., 1993; Filatotchev et al., 1999). The first set of antecedents that influences intrapreneurship are organizational characteristics (e.g. communication openness, control mechanisms, environmental scanning intensity, organizational and management support) and organizational values (Antoncic & Hisrich, 2001). Besides special attention has been paid to entrepreneurial strategies and to what they can do for a firm or not (Kuratko et al., 2005; Corbett & Hmieleski, 2007; Perez-Luño et al., 2011). Actually authors like Cooper et al. (2000: 116) have asserted that “entrepreneurial strategy has begun to be viewed as potential source of firms’ competitive advantage, a way in which established firms can develop capabilities that are central to their continuing success”.

In addition, most of the research on intrapreneurship at this organizational level focuses mostly on large corporations (Zahra, 1991, 1993; Birkinshaw, 1997; Ahuja & Lampert, 2001; Menzel et al., 2007, Verbeke et al., 2007, among others). Despite the fact that authors like Carrier (1994: 56) state that “intrapreneurship can be important not only for large corporations but also for small and medium-sized enterprises” few times the focus of analysis is on middle to small companies (Castrogiovanni et al., 2011). More recently, special attention has been paid to companies operating in technological sectors (Marvel et al., 2007; Kelley et al., 2009) as this kind of companies usually compete in very innovative environments.

2.2. Resource-based theory (RBT)

Resource-based theory (RBT) defines a company as a unique collection of resources and capabilities that cannot be bought and sold freely on the market. This approach views the firm as an historically determined collection of assets or resources which are tied semi-permanently to the firm’s management (Wernerfelt, 1984). Barney (1991: 101) defines firm resources as “all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness”. In the language of traditional strategic analysis, firm resources are strengths that firms can use to conceive of and implement their strategies (Porter, 1981). Differences in

resources, capabilities, or basic competences are considered a source of a sustainable competitive advantage (Penrose, 1959) and unique resource endowments serve to explain differences in firms' performances (Barney, 1991; Barney et al., 2001).

Valuable, rare, inimitable and non-substitutable resources are sources of a firm's competitive advantage (Barney, 1991). These kinds of firm-specific resources potentially have strategic value when they allow a firm efficiently and effectively to take advantage of opportunities (or neutralize threats) (Barney, 1991). Those resources that are valuable and rare give competitive advantage. A firm is said to have a competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors. If the resources are also difficult to imitate and substitute for, the result can be longer-term, sustainable advantage and performance (Barney, 2001; Rumelt, 1984). A firm is said to have a sustained competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy (Barney, 1991). Some users of RBT distinguish resources which can be fully appropriated, such as physical capital or brand names, from less tangible assets, such as organizational routines and capabilities (Lockett & Thompson, 2001). Similarly, distinctions may be drawn between static and dynamic resources (Dierickx & Cool, 1989). The logic of generating and sustaining rents suggests that rents are derived from the services of durable resources that are relatively important to customers, and are simultaneously superior, imperfectly mobile, imperfectly imitable, specialized, imperfectly substitutable, and cannot be entirely appropriated by others, when they are non tradeable or are traded in imperfect trading markets (Barney, 1991; Peteraf, 1993; Rumelt, 1984).

RBT is widely acknowledged as one of the most prominent and powerful theories for describing, explaining, and predicting organizational relationships. Although some earlier works had identified organizational resources as important (e.g., Penrose, 1959), an RBT of the firm did not begin to take shape until the 1980s. This decade was dominated by frameworks that focused externally, such as Porter's (1980) five-forces model, but the gradual emergence of the RBT began to redirect attention inside of organizations (Hoskisson et al., 1999). A series of important articles provided insights into how phenomena such as organizational culture (Barney, 1986), causal ambiguity

(Lippman & Rumelt, 2003), and resources in general (Wernerfelt, 1984) could contribute to organizational success.

In the last two decades, the diffusion of RBT into strategic management and related disciplines has been both dramatic and controversial, and has involved considerable theoretical development and empirical testing (Barney et al., 2001). In the traditional entrepreneurship literature there are many empirical studies grounded on RBT (see Hult & Ketchen, 2001, among others), in these investigations, RBT has been used typically to understand venture processes and strategic orientations better (Ray et al., 2004). However, in the intrapreneurship literature most studies do not use a specific theoretical framework (see appendix section for further information). Yet in recent years, increasing attention has been focused on the combination and management of resources which enable the firm to pursue new business opportunities (Zahra et al., 1999) and develop innovative actions (Sorrentino & Williams, 1995; Castrogiovanni et al., 2011), and which lead to more effective processes (Meyskens et al., 2010). These studies are consistent with the RBT approach which emphasizes the importance of a firm's resources as the drivers of growth (Penrose, 1959), high profits (Wernerfelt, 1984) and competitive advantage (Barney, 1991).

3. HYPOTHESES AND PROPOSED MODEL

Knowledge as a resource

Individuals with more or higher quality human capital should be better at perceiving profitable opportunities, once engaged in the entrepreneurial process, and such individuals should also have superior ability at successfully exploiting opportunities. Formal education is one of the main components of human capital, as education may assist in the accumulation of explicit knowledge that may provide skills useful to entrepreneurs (Davidsson & Honig, 2003). More innovative organizations are managed by well-educated teams, whose functional areas of expertise are diverse. According to recent empirical studies on different cultures around the world, investments made in improve human capital and education seem to provide an increase in the organizational innovativeness (Alpkan et al., 2010). Similarly, Chen et al. (1998)

identified a correlation between the level of entrepreneurial intention and the number of management courses taken by students.

Entrepreneurship education ranks highly on policy agendas in Europe and the US (Von Graevenitz et al., 2010), as public authorities have realized the importance of entrepreneurship as a contributor to economic development (Fayolle et al., 2006). The evidence suggests that people who start businesses have a higher level of education than people who do not (Bowen & Hisrich, 1986; Kistruck & Beamish, 2010). A firm's intellectual capital is considered to be a key and rich source of the knowledge flows required to promote corporate entrepreneurship (Chandler et al., 2005). If a company has well-qualified employees, the implementation and development of intrapreneurial projects will become easier, and, besides, the chances of success will increase. In fact, academic entrepreneurs are likely to employ more people than their non-academic counterparts (Parker, 2011), and founders with university education apparently make higher investments in their business than non-academic entrepreneurs (Reynolds et al., 1994). Besides this, it is considered to be necessary for a company to offer specific training to its workers and to hand down skills from one generation of workers to the next in order to implement and develop innovative projects (Hayton & Kelley, 2006). Therefore, we pose the following hypothesis:

Hypothesis 1: A higher educational level makes more likely that individuals develop intrapreneurial activities.

Entrepreneurial experience as a resource

Previous entrepreneurial experience is considered an important characteristic that affects and defines entrepreneurship (Shane & Venkataraman, 2000). Although some authors, like Westhead & Wright (1998), consider that there is no evidence to support the idea that habitual founders run more successful businesses than novice founders, other authors state that management skills and experience are the selection criteria most frequently used by venture capitalists (Zacharakis & Meyer, 2000). Stuart & Abetti (1990) also find a relation between the founder's specific experience in the industry and the success of the business. Similarly, Reuber & Fischer (1999) consider that understanding the role played by experience in the performance of a business is a

necessary endeavour, as certain kinds of experience are found to be predictive of firm performance. According to Wright et al. (1997: 227) “an entrepreneur’s past experience is undoubtedly of importance”, and it also provides benchmarks for judging the relevance of information (Cooper et al., 1995, Simsek & Heavey, 2011). Thus, experience may be associated with a variety of assets, which may include managerial and technical skills as well as a network of contacts that can be utilized in subsequent ventures. As a result, at any given time only some people, and not others, will know about particular customer problems or market characteristics, or the ways to create particular products or services (Venkataraman, 1997).

Overall, entrepreneurial experience may facilitate the identification and exploitation of business opportunities (Shane & Khurana, 2003). In addition, experience causes a potential reduction in adverse selection problems because of the information gained in the past (Wright et al., 1997). Therefore experienced entrepreneurs would be expected to be more creative and innovative. According to Shane & Khurana (2003: 522), the liability that new firms have to face “is particularly severe for inexperienced entrepreneurs. Inexperienced founders do not have a set of stable ties to resource holders, who are often relied upon to provide the resources necessary to found an organization. Inexperienced founders also need to learn new roles and acquire new skills in the course of structuring new organizations.” Ultimately, we have the following hypothesis:

Hypothesis 2: Previous entrepreneurial experience makes more likely that individuals develop intrapreneurial activities.

Entrepreneurial intention as a resource

Entrepreneurs’ ideas and intentions form the initial strategic template of new organizations and are important underpinnings of new venture development. Even though entrepreneurial ideas (for new products, new services, new social movements) begin with inspiration, sustained attention and intention are needed in order for them to become manifest. The opportunity recognition process, for example, is clearly an intentional process, so entrepreneurial intentions merit researchers’ attention (Krueger et al., 2000). “Intentionality is a state of mind directing a person’s attention (and therefore

experience and action) toward a specific object (goal) or a path in order to achieve something (means)” (Bird, 1988: 442). Similarly, Ajzen (1991: 181) defines intentions as “indications of how hard individuals are willing to try, of how much of an effort they are planning to exert, to perform the behavior”. Entrepreneurial intentions are considered to have a significant impact on all organizations, because they guide entrepreneurs’ goal setting, communication, commitment, organization, and other kinds of work (Bird, 1988). In existing firms, executives personal values have been found to affect corporate strategy (Guth & Taguiri, 1965; Monsen et al., 2010), intuition has been shown to play an important role in executive problem solving and planning (Isenberg, 1984), and the beliefs and perceptions of top managers have been found to directly affect the organizations they lead (Hambrick & Mason, 1984).

Intentions have been shown to be good predictors of subsequent behaviour (Ajzen, 2001). Thus understanding the nature of the antecedent factors that influence entrepreneurial intentions becomes essential to the study of entrepreneurial behaviour (Fitzsimmons & Douglas, 2011; Shane & Venkataraman, 2000). Existing theory on the development of entrepreneurial intentions has basically used two different models: Shapero’s (1982) entrepreneurial event model and Ajzen’s (1987) theory of planned behaviour. In Shapero’s model, entrepreneurial intentions are derived from perceptions of feasibility and desirability, and a propensity to act upon opportunities. On the other hand, the theory of planned behaviour identifies three attitudinal antecedents to intention: (1) attitude towards the act; (2) subjective norms; and (3) perceived feasibility (Shook et al., 2003). Thus, we pose the following hypothesis:

Hypothesis 3: Entrepreneurial intention makes more likely that individuals develop intrapreneurial activities.

Entrepreneurial competences as capabilities

A principal mechanism through which an organization develops new competitive advantages is through the pursuit of new initiatives – attempts to add new products, markets and technologies to its current repertoire. Such attempts require the firm to obtain new resources and combine them with resources it already possesses, or reconfigure those existing resources (McGrath et al., 1995). This process requires

having an entrepreneurial vision. Vision is what Carland et al. (1996) meant by “seeing what is not there”: it is not the ability to recognize opportunities, but the ability to see how to change the environment to create opportunities (Ensley et al., 2000). The entrepreneur is characterized by specialized knowledge of how to organize the ideas and capabilities to generate new projects, assuming the inherent risks in innovation (Miller, 1983). This capability becomes an entrepreneur’s intangible critical asset that allows the company to obtain a competitive advantage based on learning. According to Alvarez & Busenitz (2001), business formation is an entrepreneurial act that requires the coordination and transmission of the tacit or specialized knowledge that entrepreneurs possess. The entrepreneur’s ability to transform creative ideas into heterogeneous results makes the company more than the market. Entrepreneurial knowledge is abstract knowledge about how and where to obtain ideas.

New initiatives tend to occur in conditions where information is either missing or difficult to interpret. This implies that decisions and actions must be pursued in the face of uncertainty and ambiguity (Daft & Weick, 1984). So concepts of planning, control and learning, which are perhaps appropriate for the management of more mature businesses, are inappropriate or destructive to new initiatives (Block & MacMillan, 1985). Innovative business ideas require people to make decisions based on very little evidence, which requires high levels of self-confidence (Koellinger, 2008) and, in fact, it is a characteristic of overconfident people that they can make these decisions (Cooper et al., 1995). Overconfidence is greatest for difficult tasks, for forecasts with low predictability, and for activities that lack fast and clear feedback (Fischhoff et al., 1977), all of which are particularly relevant to innovative business ideas. According to this evidence we pose the following hypothesis:

Hypothesis 4: Considering that one has the necessary entrepreneurial competences to create a start-up makes more likely that individuals develop intrapreneurial activities.

Personal networks as capabilities

The concept of social capital is widely agreed to be ambiguous. It has many different connotations, and so the scope for confusion is considerable (Anderson & Jack, 2002; Casson & Della Giusta, 2007). There are tensions between the way the concept is used in sociology and political science on the one hand and in economics on the other. These different connotations for the personal networks concept show that the concept might still be in an emerging phase (De Carolis & Saporito, 2006). Aldrich & Zimmer (1986: 2) define networks as “the opportunity structures through which entrepreneurs obtain information, resources, and social support to identify and exploit opportunities”. Relationships may be articulated through the mechanism of membership of formal organizations, through the links an entrepreneur develops with suppliers, distributors, and customers, or through the utilization of social contacts, including acquaintances, friends, family, and kin (Dodd & Patra, 2000). Entrepreneurial networks have been shown to act as providers of psychological and practical support (Johannisson, 1986, 1987), access to opportunities (Burt, 1992; Hills et al., 1997), and a host of other resources, including finance and information (Ostgaard & Birley, 1994). Similarly, Burt (1992) characterizes social capital as a resource that brings a higher rate of return on investments. He suggests that social capital creates an advantage in “... the way in which social structure renders competition imperfect by creating entrepreneurial opportunities for certain players and not for others” (1992: 57). Indeed, the literature on both entrepreneurship (Aldrich & Zimmer, 1986) and social capital (Burt, 1992) has emphasized the importance of connections and networks for the establishment of new ventures and for innovation in general (De Carolis & Saporito, 2006). Networks facilitate the acquisition of resources by promoting a constant flow of information from diverse sources (Fernandez et al., 2000). Social capital may also help to understand how resources are integrated and recombined in firms with dynamic capabilities (Grant, 1996). Finally, in mobilizing resources for one purpose, social capital also acts to release other resources (Blyler & Coff, 2003). Ultimately, we present the following hypothesis:

Hypothesis 5: Knowing other entrepreneurs makes more likely that individuals develop intrapreneurial activities.

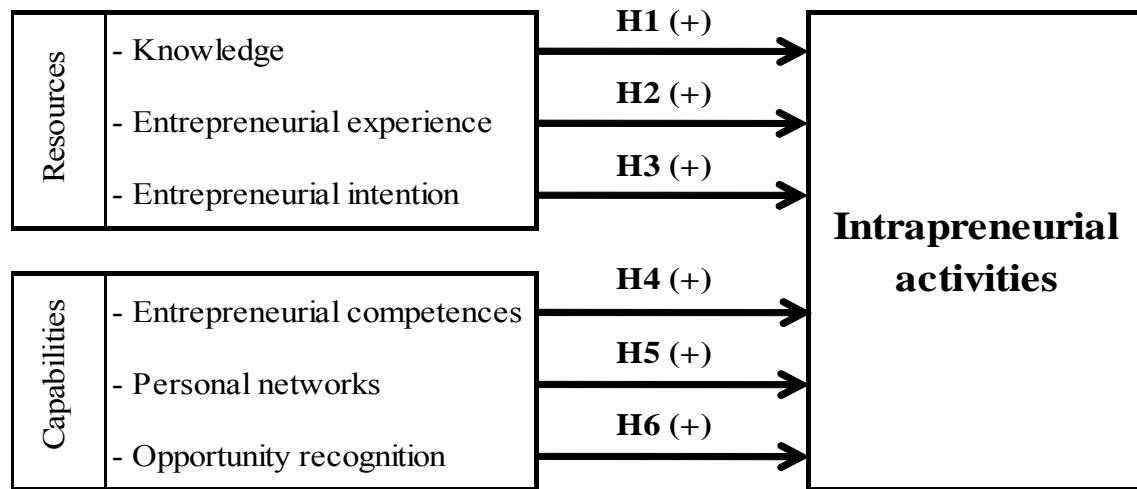
Opportunity recognition as a capability

Many scholars consider that opportunity identification represents the most distinctive and fundamental entrepreneurial behaviour (Kirzner, 1979; Stevenson & Jarillo, 1990). Consequently, understanding the opportunity identification process represents one of the core intellectual questions in the domain of entrepreneurship (Gaglio & Katz, 2001). In broad terms, an opportunity may be defined as the chance to meet a market need (or interest or want) through a creative combination of resources to deliver superior value (Schumpeter, 1934; Kirzner, 1973). Thus, to have entrepreneurship, you must first have entrepreneurial opportunities (Shane & Venkataraman, 2000). Before an individual can earn an entrepreneurial profit from an opportunity, he or she must discover that it has value (Shane, 2000). Previous researchers have argued that entrepreneurial opportunities exist primarily because different members of society have different beliefs about the relative value (the potential to transform them into a different state) of resources (Kirzner, 1997). Assuming these different beliefs, all opportunities are not obvious to everyone all of the time (Hayek, 1945). Therefore, at any point in time, only a certain subset of the population will discover a given opportunity (Kirzner, 1973). In this sense, research has suggested two broad categories of factors that influence the probability that particular people will discover particular opportunities: (1) the possession of the prior information necessary to identify an opportunity and (2) the cognitive properties necessary to value it (Shane & Venkataraman, 2000).

In order that these ideas are materialized into intrapreneurial actions, the intrapreneur has to possess the capacity to identify opportunities in the environment (Shane and Venkataraman, 2000). Therefore, the generation of ideas depends not only on the education and entrepreneurial spirit of the employee but also on the employee's ability to detect opportunities. Ultimately, all this will cause the company to obtain competitive advantages (Morris & Sexton, 1996) – that is, to implement value creation strategies that are not simultaneously implemented by other companies because they are grounded in unique, valuable, inimitable, and difficult to replace skills. Based on these explanations, the following hypothesis is posed:

Hypothesis 6: Being able to identify business opportunities makes more likely that individuals develop intrapreneurial activities.

In Figure 1 the proposed model and hypotheses are summarized.



Source: Own elaboration

4. DATA AND METHODS

Description of the variables

As we stated earlier, this article analyses the effect of resources and capabilities on intrapreneurship. The study uses data from the Global Entrepreneurship Monitor (GEM). This project is currently the most relevant study on entrepreneurial activity worldwide; it was developed as joint research between two universities, the London Business School (United Kingdom) and Babson College (USA). The GEM research programme is an annual assessment of the national level of entrepreneurial activity. The project was initiated in 1999 with 10 countries; in 2010 the database included information for 59 economies worldwide. Thus, the GEM has become the largest survey-based study of entrepreneurship in the world; since its creation it has surveyed about a million people and has interviewed around 11,000 experts. The GEM research has three main objectives: to measure differences in the level of entrepreneurial activity among countries, to uncover factors determining national levels of entrepreneurial activity, and to identify policies that may enhance the national level of entrepreneurial activity. In addition, in 2011, a total of 106 articles had been published in JCR indexed publications using a GEM database.

To ensure the quality of the data, the individual national team surveys are collected in exactly the same way and at exactly the same time of year. The individual national team surveys are harmonized into one master data set that allows users to investigate entrepreneurial activity at various stages of the entrepreneurial process, as well as to study a variety of factors characterizing both entrepreneurs and their businesses in each participating nation and across countries. The primary research tool of the GEM is the Adult Population Survey (APS), which gathers information randomly from people aged from 18 to 64 years. The main objective of the survey is to measure the attitudes towards entrepreneurship in the general population. In addition, this information is complemented with a national expert survey consisting of a 45 minute to 1 hour interview that provides a detailed description of the unique features of the (9) entrepreneurial framework conditions. Ultimately, some secondary data are also used (Reynolds et al., 2005).

Dependent variable. The dependent variable comes from the Global Entrepreneurship Monitor (GEM) 2008 database. The binary variable intrapreneurial activity is used as the dependent variable, and is a measure of individuals who, alone or with others, are currently trying to start a new business or a new venture for their employer as part of their normal work. 39 countries and 36,325 individuals were included in the final sample.

Independent variables. Two vectors of independent variables are considered in this study: resources and capabilities. Each vector is measured by three different variables from the GEM database.

Control variables. Although we are interested in developing a resource-based theory model, other factors may also influence entrepreneurial activity. Recent research has shown the importance of socio-demographic factors (Arenius & Minniti, 2005; Langowitz & Minniti, 2007), and countries' economic development, in explaining entrepreneurial behaviour. Thus we have included several control variables, to ensure that the results were not unjustifiably influenced by such factors. In each model, we controlled the individuals' socio-demographics characteristics (gender and age) and macro variables (country per capita income).

- Gender. Previous research indicates that women's participation rates in entrepreneurship are significantly lower than men's rates (Arenius & Minniti, 2005; Langowitz & Minniti, 2007), and that men are more likely to start a business than women (Blanchflower, 2004). A dummy variable for gender is included in this study to test for the significance of gender effects.
- Age. Empirical evidence indicates the existence of a significant relationship between age and entrepreneurial activity (Evans & Leighton, 1989; Levesque & Minniti, 2006).
- Country per capita income. Several authors identify a negative relationship between the level of new business activity and economic development, measured by income per capita, in emerging economies (Wennekers et al., 2005). We therefore include the natural logarithm of Gross Domestic Product (GDP) at purchasing power parity (PPP) per capita.

Table 1 shows the definition of the variables used in this research.

Table 1. Variables' description

	Variable	Description and database	Possible values
Dependent variable	Intrapreneur	Binary variable equal to 1 if individuals are, alone or with others, currently trying to start a new business or a new venture for their employer - an effort that is part of their normal work.	1. Intrapreneur 0. In other cases
	Knowledge	Binary variable which indicates if the respondent has any graduate program experience (with or without degree).	1. Yes 0. No
Independent variables (resources)	Entrepreneurial experience	Binary variable which indicates if the respondent has discontinued a business.	1. Yes 0. No
	Entrepreneurial Intention	Binary variable which indicates if the respondent intends to start a business within three years.	1. Yes 0. No
	Entrepreneurial competences	Binary variable which indicates if the respondent agreed with the statement "You have the knowledge, skill, and experience required to start a new business".	1. Yes 0. No
Independent variables (capabilities)	Personal networks	Binary variable which indicates if the respondent agreed with the statement "You know someone personally who started a business in the past two years".	1. Yes 0. No
	Opportunity recognition	Binary variable which indicates if the respondent agreed with the statement "In the next six months, there will be good opportunities for starting a business in the area where you live".	1. Yes 0. No
Control variables	Gender	Respondents were asked to specify their gender. Global Entrepreneurship Monitor GEM.	1. Male 0. Female
	Age	Respondents were asked to specify their year of birth. GEM.	
	lnGDP	Natural logarithm of gross domestic product (GDP) at purchasing power parity (PPP) per capita (U.S. dollar). International Monetary Fund IMF, World Economic Outlook Database.	

Data analysis and model

Given the binary nature of the dependent variable, we analysed the effect of resources and capabilities on intrapreneurial activity through binary response models, usually known as probability models. In a similar way to regression analysis, models for binary response extend the principles of generalized linear models in order to give a better treatment of dichotomous dependent variables. In fact, models for binary

response are extensions of the standard log-linear model, and allow the study of a mixture of categorical and continuous independent variables with respect to a categorical dependent variable. Binomial logistic regression (logit) estimates the probability of an event happening. The binomial logit model assumes that the decision of an individual i depends on an unobservable utility index U_i (also known as the latent variable), which is determined by one or more explanatory variables. Thus, the larger the value of the U_i index, the greater the probability that the dependent variable takes the value of one. Consequently, we express the index U_i as:

$$U_i = P(I_i = 1) = \delta_1 Z_{1i} + \delta_2 Z_{2i} + \beta_1 X_{1i} + \mu_i \quad (1)$$

Where:

Z_{1i} collects information related to resources;

Z_{2i} collects information related to capabilities;

X_{1i} collects the effect of the control variables; and

μ_i is the random disturbance.

5. RESULTS AND DISCUSSION

Table 2 provides means, standard deviations, and pairwise correlation coefficients for the variables we studied, and Table 3 provides the results of the logistic regression models for resources and entrepreneurial activity.

The Table 2 correlations show that some variables may be highly correlated. Thus, we also conducted a multi-collinearity diagnostic test (examining the variance inflation factors – VIFs – of all variables in the analysis), and we found that multi-collinearity is not likely to be a problem for this dataset. Also, to address the possibility of heteroscedasticity and autocorrelation among observations pertaining to the same country, robust standard errors, clustered by country, were estimated (White, 1980). In Table 3, Model 1 presents the logistic regression results with the control variables only,

and Models 2 and 3 separately introduce resources and capabilities and the control variables. Model 4 is the full model with all the significant variables.

As mentioned, Model 1 includes only the control variables. Thus, following Arenius & Minniti (2005), we entered variables measuring the individuals' socio-demographic characteristics (gender and age) as well as a macro variable (lnGDP). Consistent with the existing literature on entrepreneurship, the results suggest that an individual's socio-demographic characteristics are quite important for understanding the likelihood of him or her becoming an intrapreneur. The overall model is significant since the log pseudolikelihood statistic is -5621.584 with a p-value of 0.000; it predicts 96.23% of the responses correctly. All coefficients are significant with a p-value ≤ 0.001 and they have the expected sign. According to the existing empirical research on entrepreneurship (Arenius & Minniti, 2005: 234), being male increases the probability of becoming an intrapreneur. The age negative coefficient indicates that the probability of becoming an intrapreneur decreases with age (Levesque & Minniti, 2006). Finally, the lnGDP negative coefficient indicates that a lower income in one's country increases the probability of one becoming an intrapreneur. This finding is similar to results for entrepreneurial activity (Reynolds et al., 2001).

Table 2. Correlation Matrix

	Mean	Std. Dev.	1.	2.	3.	4.
1. Intrapreneurial activity	0.04	0.19	1.00			
2. Knowledge	0.22	0.41	0.03***	1.00		
3. Entrepreneurial experience	0.03	0.16	0.07***	-0.02	1.00	
4. Entrepreneurial intention	0.48	1.54	0.07***	0.01	0.03***	1.00
5. Entrepreneurial competences	0.47	0.50	0.13***	0.06***	0.11***	0.14***
6. Personal network	0.40	0.49	0.11***	0.08***	0.07***	0.11***
7. Opportunity recognition	0.31	0.46	0.10***	0.01	0.06***	0.06***
8. Gender	0.47	0.50	0.05***	0.01	0.03***	0.05***
9. Age	42.33	15.16	-0.06***	-0.02	-0.01	-0.11***
10. lnGDP	9.81	0.72	-0.09***	0.14***	-0.09***	-0.15***

	5.	6.	7.	8.	9.	10.
5. Entrepreneurial competences	1.00					
6. Personal network	0.26***	1.00				
7. Opportunity recognition	0.21***	0.21***	1.00			
8. Gender	0.16***	0.11***	0.07***	1.00		
9. Age	-0.07***	-0.16***	-0.09***	-0.03***	1.00	

10. lnGDP	-0.18***	-0.09***	-0.12***	-0.03***	0.17***	1.00
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Note: ***p < .001, **p < .01, *p < .05

In order to explain the impact of resources on intrapreneurial activity, Model 2 adds three variables to the control variables: knowledge, entrepreneurial experience and entrepreneurial intention. Model 2 correctly predicts 96.23% of the responses; Model 1 correctly predicts the same percentage, but in the case of this second model the pseudo R-squared increases. As expected, having knowledge (to be more specific, having a degree), having previous entrepreneurial experience and having entrepreneurial intention increase the probability of becoming an intrapreneur ($p < 0.01$).

In Model 3 we incorporate the variables of capabilities (entrepreneurial competences, personal network and opportunity recognition) and the control variables. The percentage correctly predicted in Model 3 is 96.23%, the same percentage as in Models 1 and 2, but the pseudo R-squared increases even more. Moreover, according to the Akaike criterion (AIC) and the Schwarz criterion (BIC'), Model 3 is better than Model 2 in explaining the probability of an individual becoming an intrapreneur. Also, all variables (entrepreneurial competences, personal network and opportunity recognition) are significant ($p \leq 0.001$) and they have the expected positive sign.

Finally, Model 4 shows the coefficients for the resources and capabilities variables and the control variables. In this case, R-squared is the largest of all the models, and the model correctly predicts 96.23% of the responses. The Akaike criterion (AIC) and the Schwarz criterion (BIC') are lower than in all previous models. Also, in Model 4 the importance of gender, age, and lnGDP remains unchanged. The resources (knowledge, entrepreneurial experience and entrepreneurial intention) and capabilities (entrepreneurial competences, personal network and opportunity recognition) are statistically significant in explaining the intrapreneurial activity.

Results indicate that all the resources and capabilities analysed have an influence on intrapreneurial activity, as all of them are significant and with the expected sign. Hypothesis 1 from the literature review is not rejected, therefore we accept it. This means that education plays a role in the development of intrapreneurial activities because it assists in the accumulation of knowledge (Davidsson & Honig, 2003) that can become a key source for promoting intrapreneurship (Chandler et al., 2005). Hypotheses 2 and 3 are not rejected neither, so previous entrepreneurial experience and

intention are considered to have a significant impact on an organization's intrapreneurial activities. Experience seems to be associated with a variety of assets, as it can provide expertise in running a business (Wright et al., 1997) and benchmarks for judging the relevance of information (Cooper et al., 1995). From the capabilities point of view, the fact that the employee considers that he or she has the necessary competences to create a new business influences corporate entrepreneurship. Having confidence that one has the knowledge, skills, and experience necessary to create a start-up positively influences corporate business ventures; therefore, Hypothesis 4 is not rejected and so we accept it. Hypothesis 5 cannot be rejected neither: intrapreneurship is more likely to happen if personal networks exist. These networks can be seen as the structures through which entrepreneurs obtain information, resources, and social support to identify and exploit opportunities (Aldrich & Zimmer, 1986). Similarly, Floyd & Wooldridge (1999) consider personal networks as one of the main drivers of cooperation and collective action among employees. Finally, the fact that an employee is able to identify business opportunities in the short term (6 months) also has a positive effect. Thus, Hypothesis 6 is not rejected, and the importance of opportunity recognition in entrepreneurial behaviour is highlighted (Stevenson & Jarillo, 1990).

Overall, results suggest that having the appropriate resources and capabilities is a necessary condition for the development of intrapreneurial activities. Previous literature has already studied the necessity of creating an inner environment that is conducive to internal entrepreneurship and individual commitment to sustainable corporate entrepreneurship (Alpkan et al., 2010). A successful intrapreneurial spirit can only be possible if a suitable internal support climate is established where intrapreneurs engage in opportunity-seeking entrepreneurial behaviours, as in the case of independent entrepreneurs discovering important challenges and opportunities (Zahra, 1991; Barringer & Bluedorn, 1999; Jeong et al., 2006). When these efforts are supported and coordinated by managers, these endeavours will result in sustainable competitive advantages through innovation in the form of new products, services, and processes (Quinn, 1985; Hornsby et al., 2002; Rhee et al., 2010). In this sense, Antoncic and Zorn (2004) find causal links between organizational support and types of product and technological innovations; and Hornsby et al. (2009) find correlation between top management support for corporate entrepreneurship and the number of innovative ideas implemented.

Table 3. Logit results predicting intrapreneurial activity

	Model 1.		Model 2.		Model 3.		Model 4.	
	dF/dx	Std. Err.	dF/dx	Std. Err.	dF/dx	Std. Err.	dF/dx	Std. Err.
Resources								
Knowledge			0.017***	(0.004)			0.009***	(0.003)
Entrepreneurial experience			0.053***	(0.013)			0.025***	(0.007)
Entrepreneurial intention			0.003***	(0.001)			0.002***	(0.000)
Capabilities								
Entrepreneurial competences					0.031***	(0.005)	0.028***	(0.005)
Personal network					0.016***	(0.002)	0.014***	(0.002)
Opportunity recognition					0.001***	(0.002)	0.015***	(0.002)
Control variables								
Gender	0.017***	(0.0316)	0.016***	(0.029)	0.007***	(0.002)	0.007***	(0.002)
Age	-0.000***	(0.000)	-0.000***	(0.001)	-0.000***	(0.000)	-0.000***	(0.000)
lnGDP	-0.017***	(0.004)	-0.015***	(0.003)	-0.008***	(0.003)	-0.008***	(0.002)
Number of obs	36325		36325		36324		36325	
Pseudo R-squared	0.0370		0.0542		0.0932		0.1088	
Log pseudolikelihood	-5621.584		-5521.280		-5254.2552		-5202.2043	
Percent correctly predicted	96.23%		96.23%		96.23%		96.23%	
AIC	11251.17		11056.56		10522.51		10424.41	
BIC ^a	11285.17		11116.06		10582.01		10509.41	

Note: *** significant at $p \leq 0.001$; ** significant at $p \leq 0.01$; *significant at $p \leq 0.05$.

AIC: Akaike Information Criteria, BIC: Bayesian information criterion or Schwarz Criterion.

6. CONCLUSIONS

Assuming that intrapreneurship is an important element in organizational and economic development (Antoncic & Hisrich, 2001), it is interesting to understand which factors contribute to fostering and enhancing it. Using data from the 2008 Global Entrepreneurship Monitor (GEM) for 39 countries, this research has analysed the influence of resources and capabilities on corporate entrepreneurship. The results show that companies' resources and capabilities are a key factor in the development of internal entrepreneurship (Ireland et al., 2009). Specifically, the study demonstrates (through a logistic model) that entrepreneurial resources and capabilities, such as previous entrepreneurial experience, entrepreneurial competences and the ability to detect business opportunities, increase the probability of becoming an intrapreneur. In other words, the research does not show significant differences between entrepreneurs and intrapreneurs, since they are affected by similar bases of resources and capabilities. The factors which determine whether new start-up opportunities are commercialized via corporate venturing or entrepreneurship have already been studied in the literature (Parker, 2011). However, a deeper understanding of the relationship between nascent intrapreneurship and nascent entrepreneurship could generate new insights in the literature.

The contributions of this study are both conceptual and practical. From the theoretical perspective, the work advances the application of resource-based theory in the analysis of corporate entrepreneurship. To our knowledge no study has empirically analysed the factors affecting intrapreneurship using a resource-based theory perspective. Besides this, empirically measuring resources and, especially, capabilities has sometimes generated discussion among scholars (Dutta et al., 2005). This study contributes to the improvement of the operationalization of the variables of resources and capabilities by using the GEM database. In addition, the results basically show how some factors make it more likely that a company will develop corporate entrepreneurship activities. Thus, from a practical point of view, the study could be useful for the design of policies to promote and foster intrapreneurship. In fact, as both entrepreneurship and intrapreneurship seem to be affected by the same bases of resources and capabilities, entrepreneurship would be supported by policies designed to foster intrapreneurship, and vice versa.

The study suggests several future lines of research. First, a more in-depth study of the relationship between resources and corporate entrepreneurship is needed. Second, according to the resource-based theory approach, a larger number of new variables could be used as proxies (both from resources and from capabilities). Besides, some of these variables could behave in a less direct and linear way, for example as mediating variables (Gomez-Haro et al., 2011). Additionally, intrapreneurship could be measured in different ways (with a wider or a narrower definition). Third, the research could be complemented by the use of environmental conditioning factors. In this sense, institutional theory (North, 1990) appears as a fruitful theoretical framework. Finally, a panel data study could be carried out showing how changes in the base of resources and capabilities influence intrapreneurial activities.

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APPENDIX: Summary of articles reviewed

Title	Author (Year)	Objective	Theoretical framework	Methodology	Level of analysis	Results
Predictors and financial outcomes of corporate entrepreneurship: an exploratory study	Zahra, S.A. (1991)	This exploratory study addresses two questions: (1) what are the antecedents of corporate entrepreneurship? (2) what is the association between corporate entrepreneurship and company performance?	No use of a specific theoretical framework	Questionnaires sent to 450 companies that appeared on the Fortune 500 list of US industrial corporations. Questionnaire was directed to company's CEOs	Environment/ Organization	(1) Environmental dynamism, hostility and heterogeneity intensify corporate entrepreneurship (CE). (2) Growth oriented strategies are associated with increased CE. (3) The scanning, formal communication, and integration components of formal organization structure are positively related to CE. (4) Clearly defined organizational values, are positively related to CE. (5) CE activities are associated with company financial performance and reduced systematic risk.
Environment, corporate entrepreneurship, and financial performance: A taxonomic approach	Zahra, S.A. (1993)	The study examined the association between a firm's external environment, corporate entrepreneurship, and financial performance	The study adopts a taxonomic approach that simultaneously considers multiple dimensions of a firm's environment.	Using data from 102 companies in six 4-digit industrial classifications codes (SIC), cluster analysis were used to distinguish four environmental settings	Environment	(1) Each environmental cluster had a distinct combination of activities relating to corporate innovation and venturing, and renewal. (2) corporate entrepreneurship (CE) activities varied in their associations with measures of company growth and profitability. (3) The associations between CE and company financial performance varied among the four environment clusters.
Creating corporate entrepreneurship	Stopford, J.M., Baden-Fuller, C.W.F. (1994)	Demonstrate how the various types of corporate entrepreneurship (individual managers, business renewal and Schumpeterian, or industry, leadership) share five "bundles" of attributes.	Use of the Schumpeterian innovation concept	Examination (theoretical) of a sample of 10 firms in 4 european industries.	Organization	Data suggests a provocative conclusion: troubled firms in hostile environments can shed past behaviors, adopt policies fostering entrepreneurship and accumulate innovative resource bundles that provide a platform on which industry leadership can be built.
Entrepreneurial recovery strategies of small market share manufacturers	Pearce II, J.A., Robbins, K. (1994)	Two research questions: (1) Which functional areas are most emphasized by small market share (SMS) firms that pursue entrepreneurial versus efficiency recovery strategies? (2) What are the performance implications for adopting entrepreneurial versus efficiency recovery strategies for mature-industry, SMS manufacturers based on the cause of the performance downturn?	No use of a specific theoretical framework	Empirical analysis of 32 companies. Two executives from each of the companies responded to a 162-item questionnaire	Organization	(1) High degree of strategy change among the participant firms. (2) Focus on different functional areas in firms pursuing entrepreneurial recovery strategies vs firms pursuing efficiency recovering strategies. (3) Relatively poor level of performance among SMS firms that pursued entrepreneurial recovery strategies

Title	Author (Year)	Objective	Theoretical framework	Methodology	Level of analysis	Results
Corporate entrepreneurship and financial performance: The case of management leveraged buyouts	Zahra, S.A. (1995)	The study examines three questions: (1) how does a company's entrepreneurial activities change after an LBO? (2) Does the company's performance change after an LBO? (3) Are changes in a company's entrepreneurial activities associated with changes in its performance?	No use of a specific theoretical framework	Data collected from 47 LBO companies. Multivariate analysis of covariance (MANCOVA) analysis of covariance (ANCOVA), and multiple regression were used to test the study's hypothesis	Organization	LBO companies increased their commitment to developing new products; placed greater emphasis on commercializing their technology; enhanced the quality and size of their R&D function; and intensified their new venture efforts
Contextual influences on the corporate entrepreneurship-performance relationship: A longitudinal analysis	Zahra, S.A., Covin, J.G. (1995)	The article describes a study of corporate entrepreneurship and its impact on company financial performance	No use of a specific theoretical framework	Longitudinal regression analysis with data from three different samples (24 medium-sized manufacturing firms, 39 chemical companies, 45 Fortune 500 industrial firms).	Organization	Results suggest that corporate entrepreneurship has a positive impact on financial measures of company performance
Relatedness and corporate venturing: Does it really matter?	Sorrentino, M., Williams, M.L. (1995)	It analyzes the impact of relatedness on venture performance and the interactions between the degree of relatedness and other important strategic factors that lead to success in corporate venturing	The study uses a review of the strategic management and entrepreneurship literature	The study uses a sample of 88 corporate start-ups from STR4, the corporate start-up database of the PIMS (Profit Impact of Market Strategy)	Organization	There is no significant relationship between relatedness and the aggressiveness of the entry strategy
Governance, ownership, and corporate entrepreneurship: The moderating impact of industry technological opportunities	Zahra, S.A. (1996)	It examines the association of a company's governance and ownership systems with its level of corporate entrepreneurship	Agency theory	Mail survey directed to the CEOs of the manufacturing companies on the Fortune 500 list	Environment	Results support the importance of corporate governance and ownership variables for explaining commitment to corporate entrepreneurship
Effects of manager's entrepreneurial behavior on subordinates	Pearce II, J.A., Krame, T.R. and Robbins, D.K. (1997)	Investigate the efficacy of corporate entrepreneurship programs in practice	No use of a specific theoretical framework	Data collected from the two largest units of an electric utility system. Survey sent to 102 managers and 833 managers subordinates	Individual	Managers who are entrepreneurial in their behavior have a positive impact on their subordinates' satisfaction with their supervisors

Title	Author (Year)	Objective	Theoretical framework	Methodology	Level of analysis	Results
Entrepreneurship in multinational corporations: The characteristics of subsidiary initiatives	Birkinshaw, J. (1997)	Examination of initiatives in Multinational Corporations subsidiaries	Network theory of the multinational corporation	Use of both qualitative and quantitative data. Primary sources of data were: (1) Semi-structured interviews. (2) Questionnaire	Organization	The key finding is that four types of subsidiary initiative can be identified
Corporate entrepreneurs and privatized firms in Russia, Ukraine, and Belarus	Filatotchev, I., Wright, M., Buck, T. and Zhukov, V. (1999)	Provide an exploratory examination of the nature and extent of corporate entrepreneurship in the former USSR	No use of a specific theoretical framework	Three samples (one per country) covering the main industrial regions, all types of privatized firms and different industrial sectors	Organization/ Individual	Findings provide evidence of the importance of direct involvement and the development of relationships to counteract the shortcomings of the legal infrastructure and financial reporting mechanisms
The relationship between corporate entrepreneurship and strategic management	Barringer, B.R., Bluedorn, A.C. (1999)	The study examines the relationship between corporate entrepreneurship intensity and five specific management practices	No use of a specific theoretical framework	Sample of 169 US manufacturing firms. Factor analysis+regression analysis	Organization	A firm's entrepreneurial intensity is influenced by the nature of its strategic management practices
International corporate entrepreneurship and firm performance: The moderating effect of international environmental hostility	Zahra, S.A., Garvis, D.M. (2000)	(1)Determine the impact of International Corporate Entrepreneurship (ICE) efforts. (2) Explore the moderating effect that the perceived hostility of the international environment has on the relationship between ICE and company performance	No use of a specific theoretical framework	Mail questionnaire to 600 established companies competing in 20 manufacturing industries in US	Environment	Companies benefit from ICE activities by achieving higher overall performance as well as foreign profits and growth in revenue. However, the aggressive pursuit of ICE does not always guarantee superior performance
Intrapreneurship: Construct refinement and cross-cultural validation	Antonicic, B., Hisrich, R.D. (2001)	Generalize the intrapreneurship construct in a cross-national study	No use of a specific theoretical framework	Use of two surveys, one in the US (56 responses) and one in Slovenia (145 responses) for companies with 50 or more employees	Environment/ Organization	Results support the notion that intrapreneurship is an important predictor of firm growth
Entrepreneurship in the large corporation: A longitudinal study of how established firms create breakthrough inventions	Ahuja, G., Lampert, C.M. (2001)	Present a model that explains how established firms create breakthrough inventions	No use of a specific theoretical framework	Use of a sample of firms irrespective of whether or not they have created breakthrough inventions	Organization	Identification of specific strategies that organizations can use to counter the traps that may constrain their ability to create breakthrough inventions

Title	Author (Year)	Objective	Theoretical framework	Methodology	Level of analysis	Results
Middle managers' perception of the internal environment for corporate entrepreneurship: assessing a measurement scale	Hornsby, J.S., Kuratko, D.F. and Zahra, S.A. (2002)	The study examines the key internal organizational factors that influence middle managers to stimulate corporate entrepreneurship by developing an instrument that measures these factors	No use of a specific theoretical framework	Three analysis conducted: (1) Exploratory factor analysis. (2) Confirmatory factor analysis. (3) Determination of the internal consistency of each of the resulting factors	Individual	The study documents the existence of an underlying set of five stable organizational factors that should be recognized in promoting entrepreneurial activities within an organization
Clarifying the intrapreneurship concept	Antonicic, B., Hisrich, R.D. (2003)	Clarification of the intrapreneurship concept	No use of a specific theoretical framework	Theoretical article, no explanation of any methodology	Organization	The article provides a definition that differentiates intrapreneurship from other similar management concepts and it identifies the key dimensions of intrapreneurship
A Model of Middle-Level Managers' Entrepreneurial Behavior	Kuratko, D.F., Ireland, R.D., Covin, J.G. and Hornsby, J.S. (2005)	The purpose of the study is to use the results of conceptual and empirical corporate entrepreneurship (CE) research to model the antecedents to middle-level managers' entrepreneurial behavior, the behavior itself, and the outcomes resulting from it	No use of a specific theoretical framework	Theoretical article, no explanation of any methodology	Individual	The enactment of CE portends the possibility of highly favorable outcomes for both organizations and their individual members. Critical to such outcomes is the involvement of middle-level managers in the entrepreneurial process
Predicting order and timing of new product moves: the role of top management in corporate entrepreneurship	Srivastava, A., Lee, H. (2005)	Focus on new product moves as a form of corporate entrepreneurial activity	They follow the strategic choice perspective (Child, 1972) to argue that the characteristics of top level decision makers should predict the timing and order of the firm's new product moves	Analysis of 223 new product introduction moves from the personal computer, long distance telecommunication, and brewing industries (period 1975-1990)	Individual	Firms with larger top management teams are more likely to be first movers
Corporate Entrepreneurship in Family Firms: A Family Perspective	Kellermanns, F.W., Eddleston, K.A. (2006)	Investigation of how generational involvement, willingness to change, and the ability to recognize technological opportunities impact corporate entrepreneurship in family firms	No use of a specific theoretical framework	Mail surveys to 232 US family firms	Organization	Findings suggest that willingness to change and technological opportunity recognition are positively related to corporate entrepreneurship in family firms

Title	Author (Year)	Objective	Theoretical framework	Methodology	Level of analysis	Results
Examining the Technical Corporate Entrepreneurs' Motivation: Voices from the Field	Marvel, M.R., Griffin, A., Hebda, J. and Vojak, B. (2007)	Investigate the sufficiency of five conditions (rewards, management support, resources, organizational structures and risk acceptance) in motivating individual scientists or engineers who have created innovations in mature corporations	No use of a specific theoretical framework	Use of a multiple case comparison methodology	Individual	Technical corporate entrepreneurs are complex, both in terms of how to manage them and how to sustain their intrinsic motivation. While the conditions for corporate entrepreneurship do apply in motivating these individuals, they are not sufficient
On the way to creativity: Engineers as intrapreneurs in organizations	Menzel, H.C., Aaltio, I. and Ulijn, J.M. (2007)	Explore the origins of the intrapreneurship capacity in engineering settings of hightech firms	No use of a specific theoretical framework	Theoretical article, no explanation of any methodology	Individual	It is important to implement intrapreneurship in the settings of existing companies and in engineering and R&D settings in particular. Intrapreneurship is about people in (inter)action, and its future oriented
A Note on Strategic Renewal and Corporate Venturing in the Subsidiaries of Multinational Enterprises	Verbeke, A., Chrisman, J.J. and Yuan, W. (2007)	Synthesize Birkinshaw's discussion of the determinants of subsidiary initiatives and extend his work by distinguishing between initiatives that directly and intentionally affect a subsidiary's existing businesses and those aimed primarily at creating new business ventures within a subsidiary	No use of a specific theoretical framework	Theoretical article, no explanation of any methodology	Organization	They propose that the determinants of subsidiary renewal and subsidiary venturing are different and that these two types of initiatives should be accounted for explicitly in research
Intrapreneurship: a comparative structural equation modeling study	Antonicic, B. (2007)	Illustrate the intrapreneurship construct with its predictors and consequences via a model	No use of a specific theoretical framework	Mailed structured questionnaire data for the study were collected from firms in US and Slovenia. Structural equation modeling is used to estimate models and compare coefficients and latent means	Environment/ Organization	The model hypothesizes on the relationships among environment, organizational characteristics, intrapreneurship, and performance are mainly supported across both countries and by both models
The Conflicting Cognitions of Corporate Entrepreneurs	Corbett, A.C., Hmieleski, K.M. (2007)	Examine the interplay and divergence between the role schema of individuals in corporations and the event schemas necessary to launch a new venture	Social cognitive theory	Theoretical article, no explanation of any methodology	Individual	They highlight the importance of role schemas and their potential conflict with the task of creating new ventures within the context of large, established corporations
Corporate Entrepreneurship as Resource Capital Configuration in Emerging Market Firms	Yiu, D.W., Lau, C.M. (2008)	(1) Specify exactly what type of resource capital firms can derive from their network ties in emerging markets. (2) Understand better how resource capital derived from different types of networks are employed and transformed to realize firm performance	Dynamic capability approach	Questionnaire survey to CEOs of firms in China (458 firms). Structural equation modeling	Organization	Although organizations have the need to rely on resources provided by the external environment, they can, however, perform different corporate entrepreneurial activities to configure these resource capital as to improve their dynamic capabilities and react to the dominant institutions facing them in emerging markets

Title	Author (Year)	Objective	Theoretical framework	Methodology	Level of analysis	Results
Managers' emotional displays and employees' willingness to act entrepreneurially	Brundin, E., Patzelt, H. and Shepherd, D.A. (2008)	Analyze how and why emotional displays of managers influence the willingness of employees to act entrepreneurially	Use of the emotions and entrepreneurial motivation literature	Panel of small Swedish firms which engage in entrepreneurial activity	Individual	Employees willingness to act entrepreneurially increases when managers display confidence and satisfaction about an entrepreneurial project, and their willingness decreases when managers display frustration, worry, and bewilderment about the project
How do threshold firms sustain corporate entrepreneurship? The role of boards and absorptive capacity	Zahra, S.A., Filatotchev, I. and Wright, M. (2009)	Propose that developing a threshold company's absorptive capacity requires sustained investments in human resources, infrastructure and research programs	Knowledge-based theory of the firm	Theoretical article, no explanation of any methodology	Organization	They highlight the importance of boards of directors and absorptive capacity for gaining access to varied and current knowledge that enriches corporate entrepreneurship (CE). They suggest that boards and absorptive capacity complement each other in fueling CE activities
Project failure from corporate entrepreneurship: Managing the grief process	Shepherd, D.A., Covin, J.G., Kuratko, D.F. (2009)	Propose which approaches to failure are more likely to enable individuals to learn from project failure and maintain commitments for subsequent entrepreneurial projects	They complement social cognitive theories with psychological theories on grief	Theoretical article, no explanation of any methodology	Individual	The extent that organizational members have high self-efficacy for recovering from grief over project failure, or this coping self-efficacy can be built through the social support offered by the organizational environment, regulating rather than eliminating, grief via normalization processes will explain superior learning and motivational outcomes
The Effect of a Market Orientation, Entrepreneurial Orientation, and Technological Capability on Innovativeness: A Study of Young Biotechnology Ventures in the United States and in Scandinavia	Renko, M., Carsrud, A. and Brännback, M. (2009)	The study investigates influences of market orientation, entrepreneurial orientation, and technological capabilities on technology ventures' innovativeness	No use of a specific theoretical framework	Use of case studies+subsequent questionnaire in biotechnology startups in the US, Finland and Sweden	Organization	Results indicate a significant link between technological capability and product innovativeness. However, neither market orientation nor entrepreneurial orientation is related to product innovativeness in this empirical context where firms typically aim at launching radical, disruptive innovations
Corporate entrepreneurship: Current research and future directions	Phan, P.H., Wright, M., Ucbasaran, D. and Tan, W.L. (2009)	They suggest future research on the processes and knowledge-based resources in corporate entrepreneurship (CE), argue for the need to appreciate the heterogeneity of CE in relation to new contexts, and suggest appropriate strategies for such contexts	No use of a specific theoretical framework	Theoretical article, no explanation of any methodology	-	They consider that future research needs to consider the limits to the applicability of theories developed in other contexts to CE. For example, there may be limits to how far theories of radical innovation and venture capital can be applied to CE and corporate venture capital, respectively

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Beyond Simple Utility: Incentive Design and Trade-Offs for Corporate Employee-Entrepreneurs	Monsen, E., Patzelt, H. and Saxton, T. (2010)	Develop a moderated model of new venture participation, integrating financial, risk, and effort factors to more comprehensively understand the limits of economic maximization theory	Economic utility maximization theory	Sample of 61 corporate employees in an evening master (MBA) program at a US university. Use of a conjoint metric experiment	Individual	Risk and effort interact to affect the choice to engage in corporate entrepreneurship projects
Intra-organizational networking for innovation-based corporate entrepreneurship	Kelley, D.J., Peters, L. and Collarelli O'Connor, G. (2009)	The research examines the interplay among organizational, individual and programmatic components that enrich network activities for innovation-based corporate entrepreneurship (ICE)	Network theory	They conducted 143 interviews in total, they interviewed the person or persons with primary responsibility for developing and maintaining the ICE initiative	Organization	The analysis identifies project leader-level, and program-level constructs relevant to network activities for ICE. At the organizational level is organizational network capacity, at the individual level, they call it individual network capacity.
Conceptualizing Corporate Entrepreneurship Strategy	Ireland, R.D., Covin, J.G. and Kuratko, D.F. (2009)	Conceptualize corporate entrepreneurship (CE) strategy as a useful focal point for integrating and synthesizing key elements within CE's intellectual domain	No use of a specific theoretical framework	Theoretical article, no explanation of any methodology	Environment/ Individual/ Organization	They depict corporate entrepreneurship as a distinct, identifiable type of strategy, they bring a significant degree of clarity to the matter of how CE strategy might be conceptualized and, thereby, they provide a useful reference point for future theoretical explorations and managerial actions
Managers' corporate entrepreneurial actions: Examining perception and position	Hornsby, J.S., Kuratko, D.F., Shepherd, D.A. and Bott, J.P. (2009)	Do different managerial levels provide a differential structural ability to capitalize on a supportive organizational environment to act entrepreneurially?	No use of a specific theoretical framework	Sample of 458 managers. Use of a moderated Poisson regression analysis	Individual	The relationship between managers' perceptions of the organizational environment and the number of entrepreneurial ideas implemented varied across managers of different structural levels
Structural differentiation and corporate venturing: The moderating role of formal and informal integration mechanisms	Burgers, J.H., Jansen, J.J.P., Van den Bosch, F.A.J. and Volberda, H.W. (2009)	The study investigates the effectiveness of combining structural differentiation with formal and informal organizational as well as top management team integration mechanisms in establishing an appropriate context for venturing activities	No use of a specific theoretical framework	Survey research on 240 Dutch companies. Use of a moderated regression analysis	Individual/ Organization	Finding suggest that structural differentiation has a positive effect on corporate venturing. Besides, a shared vision has a positive effect on venturing in a structurally differentiated context

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Job satisfaction and commitment in the entrepreneurial SME	Akehurst, G., Comeche, J.M. and Galindo, M.A. (2009)	Analysis of the influence of the different variables of attitude on Internal entrepreneurship	No use of a specific theoretical framework	Selection of firms from the Company Directory ARDÁN. Use of structural equations model	Individual	Job satisfaction and commitment to the team are factors that have a direct and positive effect on Internal Entrepreneurship
Information technology-enabled intrapreneurship culture and firm performance	Benítez-Amado, J., Llorens-Montes, F.J. and Pérez-Arostegui, M.N. (2010)	The purpose of this paper is to analyze the relationships among two types of information technology (IT) resources (technological IT and managerial IT resources), the intrapreneurship culture and firm performance	Perspective on IT-enabled organizational capabilities	A proposed research model and hypothesis are tested using cross-sectional survey data from a sample of 203 leading Spanish firms	Organization	Data analysis shows that intrapreneurship culture is a valuable key capability that predicts firm market performance; both technological IT and managerial IT resources have a positive effect on the development of an intrapreneurship culture in the firm
Organizational support for intrapreneurship and its interaction with human capital to enhance innovative performance	Alpkan, L., Bulut, C., Gunday, G., Ulusoy, G. and Kilic, K. (2010)	Investigate the direct and interactive effects of organizational support and human capital on the innovative performance of companies	Use of human capital and organizational support literature	Questionnaire covering 184 manufacturing firms in Turkey. Organizational support dimensions are the independent variables and innovative performance is the dependent one	Individual	Among the individual direct effects of the dimensions of organizational support, management support for idea development and tolerance for risk taking are found to exert positive effect on innovative performance. Availability of a performance based reward system and free time have no impact on innovativeness, while work discretion has a negative one
The Interplay of Form, Structure, and Embeddedness in Social Intrapreneurship	Kistruck, G.M., Beamish, P.W. (2010)	Examine how the initial organizational form (for profit or non-for profit) may impact the ability of the organization to successfully engage in new activities in which social and financial goals are much more balanced	No use of a specific theoretical framework	Comparative case study analysis of 10 different organizations located in three countries within Africa and four countries within Latin America	Individual	Cognitive, network, and cultural embeddedness each play an important constraining role that is even more pronounced in organizations that were historically nonprofit in form
Drivers of innovativeness and performance for innovative SMEs in South Korea: Mediation of learning	Rhee, J., Park, T. and Lee, D.H. (2010)	Investigate the relationships between drivers of innovativeness and the mediation effects of learning orientation	No use of a specific theoretical framework	Structural equation modeling is performed for the data collected from 333 technology-innovative small firms in South Korea	Organization	Results reveal that market orientation and entrepreneurial orientation significantly influences learning orientation

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The dual nature of innovative activity: How entrepreneurial orientation influences innovation generation and adoption	Pérez-Luño, A., Wiklund, J. and Valle Cabrera, R. (2011)	Analyze two modes of innovation that differ in their scope of newness - innovation generation and adoption	They built on the literature on Entrepreneurial Orientation	Use of a unique sample of innovating firms (2942 firms)	Environment/ Organization	Proactivity and risk taking are positively associated with the number of internally generated innovations. However, they did not find a relationship between environmental dynamism and innovation generation
The mediating role of knowledge-based capital for corporate entrepreneurship effects on performance: A study of small- to medium-sized firms	Simsek, Z., Heavey, C. (2011)	Demonstrate that the pursuit of corporate entrepreneurship enhances the firm's knowledge-based capital residing in people (human capital), relationships (social capital), and systems (organizational capital).	Use of human, social and organizational capital literature	Test the hypothesis using multisource data from a sample of CEOs and their top management teams in 125 firms	Organization	Findings indicate that corporate entrepreneurship is positively associated with knowledge-based capital and through this, with performance
Intrapreneurship or entrepreneurship?	Parker, S.C. (2011)	Explore the factors that determine whether new business opportunities are exploited by starting a new venture for an employer (nascent intrapreneurship) or independently (nascent entrepreneurship)	No use of a specific theoretical framework	Nationally representative sample of American adults (2005-06). Use of a bivariate probit	Individual	Nascent entrepreneurs tend to leverage their general human capital and social ties to organize ventures which sell directly to customers, whereas intrapreneurs disproportionately commercialize unique new opportunities which sell to other businesses
Configuring a corporate venturing portfolio to create growth value: Within-portfolio diversity and strategic linkage	Lin, S.J. (2011)	The study attempts an empirical investigation of whether and how a corporate investor can enhance future growth opportunities through corporate venturing investments (CVIs)	No use of a specific theoretical framework	Longitudinal dataset of CVIs made by Taiwanese technology-based companies	Organization	Increasing CVI portfolio diversity and maintaining strategic linkages, particularly vertical ones, between the portfolio companies and the investing firm's core business will add value to the investing firm's future growth
Linking corporate entrepreneurship and human resource management in SMEs	Castrogiovanni, G.J., Urbano, D. and Loras, J. (2011)	Analyze the human resource management practices adopted in small and medium-sized enterprises for promoting corporate entrepreneurship in the Spanish context	Resource based view theory	Multiple case study approach	Organization/ Individual	The creation of personal relationships and the development of an open communication between owner-managers and employees, and among employees themselves, can help to explain the dynamics of entrepreneurial behaviors within small firms

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Differentiating the effects of the institutional environment on corporate entrepreneurship	Gómez Haro, S., Aragón Correa, A., Cordón Pozo, E. (2011)	contribute to a better understanding of how different dimensions of the institutional environment of a region may influence the level of corporate entrepreneurship of firms	Institutional Economics	Phone survey to 150 Spanish firms	Organization	Both the normative and cognitive dimension of the institutional environment influence an organisation's entrepreneurial orientation. We also show that regulatory dimension influences what type of corporate entrepreneurial activity is carried out

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